

FROM THE DESK OF
SAIGE TROTTMAN-HUIET

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Dear Chancellor of MIT,

I sincerely believe that funding for Alzheimer's Research, specifically Professor Tsai's should be continued. Alzheimer's Disease directly affects 25-35% of people over 85 years old which is a large part of the population. It also affects those related to the patients. I believe that it is our responsibility to try to improve others' lives as much as possible. This is a terminal disease, meaning it eventually leads to death. Even while they are alive, it is a very challenging disease to live with. Through previous research, we know that Alzheimer's Disease is caused by many biological factors, only few of which have been determined. The main cause seems to be the low levels of neurotransmitters. This is probably caused by the development of amyloid plaques, which damages axons and dendrites. Also, neurofibrillary tangles which are caused by abnormal tau protein which is normally the support structure of neurons. When the tau protein breaks, cell bodies dendrites are twisted together. Both the neurofibrillary tangles and amyloid plaques decrease the communication between neurons and subsequently shrink the hippocampus and cerebral cortex. This damage to the brain causes many behavioral issues. The most common is loss of memory and capability to learn new things or make new memories. Episodic memory, which acts as a timeline for your memories, is most severely affected which can cause confusion. Eventually, as the disease worsens, patients lose motor control and their personality changes. While medicine and healthy habits may slow the progress, there is still no real cure.

However, Professor's Tsai's research has given hope to finding a cure. In order to find a cure for a disease, it is important to understand everything about it. Professor Tsai has made momentous discoveries in the realm of memory in Alzheimers that may help stop it. Her work has found that the p25 and HDAC2 have an impact on memory and Alzheimer's disease. Through lab experiments with mice, she has found that the chemical P25 may cause neurodegeneraion and decreased memory capability. She genetically engineered mice to have high levels of p25 and found that their memory was significantly less than the others. She has also found that sodium butyrate could retrieve old memories from the mice with p25 and that an enriched environment can improve their memory. Furthermore, she has found that drugs that work on the gene HDAC2 not only improve cognitive function in mice but also reverse the effects of Alzheimer's Disease. Professor Tsai believes "This is exciting

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because more potent and safe drugs can be developed to treat Alzheimer's and other cognition diseases by targeting this HDAC specifically."

As evident through Professor Tsai's research, there is hope for finding a cure for Alzheimer's disease. With every dollar that goes to Alzheimer's research, we are a step closer to solving a problem that affects many people in the world. While there are still aspects of Alzheimer's disease in normal aging, Alzheimer's makes the end of a person's life very challenging for themselves and everyone around them. With more research, it may be possible to find definite causes for Alzheimer's which would make it possible to find ways to prevent it. Maybe in the future, we will be able to diagnosis this disease before the onset to prevent even more people from getting it. Besides the advantages research gives for Alzheimer's patients, it also provides opportunities to learn more about the cognitive process of memory. There are many theories of how memory works and with every new discovery about Alzheimer's, we come closer to understanding how memory really works. As chancellor of MIT, you have the opportunity to improve people's lives and provide new insight into the brain, or you can cut off funding for Alzheimer's Research.



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Sincerely yours,

Saige Trottman-Huiet